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大教堂与集市

THE CATHEDRAL & THE BAZAAR

MUSINGS ON LINUX AND OPEN SOURCE BY AN ACCIDENTAL REVOLUTIONARY



ERIC S. RAYMOND 著

卫剑钒 译

BOB YOUNG RED HAT公司董事长兼CEO作序推荐

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China Machine Press

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Eric Raymond[illegible]

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——Bob Young,Red Hat[illegible]CEO

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1990[illegible]AT&T UNIX[illegible]BSD UNIX[illegible]

[illegible]20[illegible]90[illegible]Intel 386[illegible]

[illegible]UNIX[illegible]

MS-DOS[illegible]DOS[illegible]Mac[illegible]“[illegible]”[illegible]UUCP[illegible]

CompuServe[illegible]GEnie[illegible]UNIX[illegible]

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[illegible]FSF[illegible]RMS[illegible]HURD——[illegible]UNIX[illegible]1996[illegible]1990[illegible]FSF[illegible]UNIX[illegible]

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Linux□□□□□□□□□□□□□□□□□□□□□Linux□□□FSF□20□□80□□□□□□□□□□□□□□□□□□Lynne Jolitz□□□386BSD□□□□□freeBSD/netBSD/OpenBSD□□□□□□□□□□□□□□□□

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BSD UNIX

1.7 Web[illegible]

[illegible]Linux[illegible]20[illegible]90[illegible]ISP([illegible])[illegible]WWW[illegible]

1994[illegible]Berkeley UNIX[illegible]UNIX[illegible]Linux[illegible]386BSD[illegible]Linux[illegible]CD-ROM[illegible]1995[illegible]

20[illegible]90[illegible]Linux[illegible]WWW[illegible]20[illegible]80[illegible]90[illegible]ISP[illegible]

[illegible]1994[illegible]1995[illegible]“[illegible]”[illegible]Clipper[illegible]1996[illegible]“[illegible]”[illegible]CDA[illegible] [6][illegible]

[illegible]CDA[illegible]“[illegible]”[illegible]

[1] [illegible]hackerdom[illegible]“[illegible]”[illegible]dom[illegible]“[illegible]”[illegible]——[illegible]

[2] [illegible]978-7-111-35840-4[illegible]——[illegible]

[3] [illegible]——[illegible]

[4] □□□SAIL□□□SAIL□□□□Stanford Artificial Intelligence Laboratory□□□□SAIL□□□Stanford Artificial Intelligence Language□□——□□□

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2.[illegible]

Linux[illegible]fetchmail[illegible]

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[illegible]“[illegible]”[illegible]Linux[illegible]“[illegible]”[illegible]

[illegible]Linux[illegible]“[illegible]bug[illegible]”[illegible]

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[illegible]Linux[illegible]Linux[illegible]Linux[illegible]

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2.[illegible]

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[illegible]Linus Torvalds[illegible]Linux[illegible]Minix[illegible]PC[illegible]UNIX[illegible]Linux[illegible]Minix[illegible]Linux[illegible]

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UNIX[illegible]GNU[illegible]UNIX[illegible]OS[illegible]UNIX[illegible]Linux[illegible]Linux[illegible]T[illegible]“[illegible]”[illegible]

[illegible]fetchpop[illegible]PopTart[illegible]get-mail[illegible]gwpop[illegible]pimp[illegible]pop-perl[illegible]popc[illegible]popmail[illegible]upop[illegible]Seung-Hong Oh[illegible]fetchpop[illegible]“[illegible]”[illegible]1.9[illegible]

[illegible]Carl Harris[illegible]popclient[illegible]fetchpop[illegible]POP3[illegible]Seung-Hong Oh[illegible]Carl Harris[illegible]fetchpop[illegible]

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[illegible]popclient[illegible]POP3[illegible]fetchpop[illegible]POP2[illegible]RPOP[illegible]AROP[illegible]IMAP[illegible]Internet Message Access Protocol[illegible]http://www.imap.org[illegible]

[illegible]Linux[illegible]

3.“[illegible]”[illegible]Fred Brooks[illegible]11[illegible]

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4.[illegible]

[illegible]Carl Harris[illegible]

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[illegible]Carl Harris[illegible]Carl Harris[illegible]

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Stallman[illegible]Emacs[illegible]http://www.fsf.org[illegible]

Emacs[illegible]VC[illegible]SCCS[illegible]RCS[illegible]CVS[illegible]“[illegible]”[illegible]

[illegible]sccs.el[illegible]

Emacs[illegible]Emacs[illegible]Lisp[illegible]“[illegible]/[illegible]/[illegible]”[illegible]

[illegible]Emacs[illegible]

[illegible](toolbox)[illegible]MATLAB[illegible]

MATLAB[illegible]

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2.4 [illegible]

[illegible]Linux[illegible]buggy version[illegible]

[illegible]bug[illegible]Emacs[illegible]C[illegible]Lisp[illegible]Lisp[illegible]FSF[illegible]Emacs[illegible] 2

[illegible]Ohio[illegible]Emacs Lisp[illegible]Linux[illegible]FSF[illegible]1992[illegible]Emacs[illegible]Lisp[illegible]

[illegible]Linux[illegible]Linus[illegible]Linux[illegible]Internet[illegible]Linux[illegible]

Linus[illegible]

7.[illegible]

Linus[illegible]UNIX[illegible]1991[illegible]Linus[illegible]Internet[illegible]

[illegible]Linus Torvalds[illegible]

[illegible]Linus[illegible]Linux[illegible]Richard Stallman[illegible]James Gosling[illegible]NeWS[illegible]Java[illegible]Linus[illegible]bug[illegible]A[illegible]B[illegible]Linux[illegible]Linus[illegible]

[illegible]Linus[illegible]

[illegible]Linus[illegible]/[illegible]

Linus[illegible]“[illegible]”[illegible]person-hour[illegible]bug[illegible]Linus[illegible]

8.[illegible]beta[illegible] [1][illegible]

[illegible]“[illegible]bug[illegible]”[illegible]“Linus[illegible]”[illegible]

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Linus[illegible]bug[illegible]

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[illegible]Linus[illegible]Linus[illegible]“[illegible]”bug[illegible]Linus[illegible]Linus[illegible]bug[illegible]

[illegible]“[illegible]”(Delphi effect)[illegible]Linus[illegible]——“[illegible]”[illegible][3]

Linus[illegible]“[illegible]”[illegible]Linus[illegible]Linus[illegible]

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[illegible]bug[illegible]bug[illegible]

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[illegible]Brooks[illegible]“[illegible]”[illegible]Brooks[illegible]

Brooks[illegible]bug[illegible]/[illegible]N(N-1)/2[illegible]N[illegible]

Brooks[illegible] [2][illegible]bug[illegible]Brooks[illegible] [6]

[illegible]bug[illegible]bug[illegible]bug[illegible]

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[illegible]bug[illegible]“[illegible]”[illegible]semi-random[illegible]bug[illegible]

[illegible]bug[illegible]“[illegible]”[illegible]“[illegible]”[illegible]bug[illegible]“[illegible]”[illegible]bug[illegible]——[illegible]

[illegible]bug[illegible]bug[illegible]bug[illegible]bug[illegible]

2.6 [illegible]

[illegible]Linus[illegible]Linux[illegible]

[illegible]popclient[illegible]Carl Harris[illegible]C[illegible]LISP[illegible]

[illegible]bug[illegible]

[illegible]Cral Harris[illegible]IMAP[illegible]POP2[illegible]POP3[illegible]IMAP[illegible]C[illegible]

9.[illegible]

Brooks[illegible]9[illegible]“[illegible]”[illegible]30[illegible]/[illegible]

[illegible]1996[illegible]9[illegible]POP[illegible]popclient[illegible]

在popclient中，我已经觉得要将转发到SMTP的代码分离出来。本想将其作为一个可选项，结果却发现我很喜欢这样的代码，以至于我想去掉其他的模式。对我来说，从Linus那里学到的在大集市中表现得好就是要遵从以下几点：

·我最早、最经常地发布（几乎从来没有超过10天；在高强度开发阶段，甚至每天发布一次）。

·我将每个讨论fetchmail的人都加入我的beta列表。我将beta列表扩大——直至高峰。

·每当我添加新功能时，就向beta列表发布通知，鼓励大家一起参与进来。

·我倾听beta测试者的意见，就设计决策征求他们的意见，每当他们提出补丁和反馈时，就向他们表示感谢。

这些简单措施带来了立竿见影的回报。从项目开始，我就得到了高质量的错误报告，其中常常带有解决bug的良好补丁。我得到了深思熟虑的批评，得到了粉丝们的来信，得到了智能的功能建议。这就导致：

10.如果你把beta测试者当作最有价值的资源对待，他们也会成为你最有价值的资源。

衡量fetchmail成功的一个有意思的指标就是beta测试者fetchmail-friends邮件列表的规模。在截至2000年11月的最新修订中，它有287个成员，并且每周增长2～3个。

实际上，在我修订该书的1997年5月底，列表由于一个有趣的原因开始失去成员。有几个人要求我取消他们的订阅，因为fetchmail工作得太好了，他们不再需要看列表里的通信！也许这就是成熟的集市型项目生命周期的一部分。

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[4] [illegible]Syntactic Sugar[illegible]Peter J.Landin[illegible]——[illegible]

[5] “egoboo”[illegible]ego boosting[illegible]1947[illegible]egoboo[illegible]——[illegible]

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3.13　接受产品的阶段

开发出的产品一般要经过几个阶段才会被大众接受。为了便于理解，这里分成三个阶段：

1. 产品首次被少数人使用——主要是有兴趣的开发者和爱好者

此时“产品”刚刚完成，或者正处在测试阶段（beta版），往往还有许多已知的bug，而且没有经过充分的测试，只有一些原本就对它有兴趣的人愿意尝试使用这个产品。

早期使用者的意见往往对软件的发展有所帮助，在beta测试的阶段，往往有许多问题被修正，产品逐渐稳定，然后才发布1.0版。不过，对于1.0版，有“不要使用任何软件的第一个版本”的说法。其实1.0版更确切是“第一个可以使用的版本”。

2. 得到更多的人的使用，并且在主流的开发环境中也开始被采用

得到了最初用户的认可以后，产品就开始进入了一个更加广泛使用的阶段，越来越多的人开始使用产品，产品逐渐在市场中确立了自己的地位，产品的各种版本和衍生产品相继出现，进一步扩大了产品的影响范围。

一个典型的例子就是得到广泛使用的Samba——一个在UNIX上实现了微软的文件共享和打印共享协议（SMB）的软件。它不仅在开源社区得到了广泛的使用，而且在许多商业产品中也得到了应用，Samba也几乎成为每一个开源操作系统的必备组件，同时也在一些专业的商业产品里面得到了广泛使用。

3. 得到了市场的完全认可，各种商业公司开始推出基于开源软件的产品和服务

这一阶段的例子就是各种Linux发行版：Red Hat、Debian、Caldera、SuSE等，以及另一类开源操作系统——各BSD系统。这些系统在各自的领域里都已经获得了充分的认可，而且有许多公司提供商业支持。

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3.15　代码的作者

对于我们写的代码，究竟怎样的人才是作者，我们认为：

·代码的作者即是负责人。

·只有作者才有权修改自己写的代码。

·作者以外的人不该修改代码。别人最多只能发现bug，然后交给作者。

·其他人要修改需要作者同意。

这种“代码属于作者的”想法，不只出现于软件开发领域，在很多地方也能找到类似之处。由这种想法，可以衍生出“代码所有权”的概念。

所有权这一概念，在日常生活中大致有如下的含义：对某物(a)具有排他性的使用权；(b)由于是自己创造的，因而对该物拥有权利；(c)该物的状态由所有者负责，出了问题要由他负责。

先前的说法中，(a)和(c)是主要成分。在这个意义下，作者的概念就变成了管理人，它所关注的是组织内部怎样分配职责，以及谁有权批准修改的问题。

另一方面，我们也能听到程序员常常提到自己的代码是他们的“作品”。在这个意义下，程序员会自认为工匠，就像其他领域的工匠（craftsman）一样，对自己完成的作品拥有某种意义上的自豪感与责任感。

这种以作品为中心的想法与(b)有关，即以创造或劳动作为所有权的基础——这是一个相当有影响力的观点。在政治哲学中，洛克式的财产权理论（Lockean）认为，劳动是财产所有权的来源，并在很多领域广泛流传。

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esr@thyrsus.com

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[1] [illegible]noosphere[illegible]“[illegible]”[illegible]atmosphere[illegible]“[illegible]”[illegible]biosphere[illegible]——[illegible]

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http://www.tuxedo.org/~esr/faqs/hacker-howto.html

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[illegible]Red Hat[illegible]Linux[illegible]RPM[illegible]Windows[illegible]

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[illegible]“[illegible]”[illegible]Netscape[illegible]Mozilla[illegible]HTML[illegible]HTTP[illegible]

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[illegible]——[illegible]bug[illegible]

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[illegible]“Peopleware:Productive Projects and Teams”[illegible]“[illegible]”[illegible]5[illegible]“[illegible]”[illegible]

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4.14 [illegible]

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[illegible]http://leb.net/hzo/ioscount/[illegible]Linux[illegible]

4.17 [illegible]

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[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]TCP/IP[illegible]

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[illegible]Oleg Kalugin[illegible]

[illegible]http://cnn.com/SPECIALS/cold.war/experience/spies/interviews/kalugin/[illegible]

“[illegible]IBM[illegible]

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Rudyard Kipling[illegible]“The Mary Gloster”[illegible]http://www.everypoet.com/archive/poetry/Rudyard_Kipling/kipling_the_mary_gloster.htm[illegible]

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[2] [illegible]race to the bottom[illegible]——[illegible]

[3] [illegible]Free r ider[illegible]——[illegible]

[4] [illegible]network effect[illegible]Metcalfe's law[illegible]——[illegible]

[5] [illegible]perceived value[illegible]——[illegible]

[6] [illegible]Internal market[illegible]——[illegible]

[7] [illegible]tar-pit[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”——[illegible]

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5.2 [illegible]Brooks[illegible]

1993[illegible]CD-ROM[illegible]Yggdrasil[illegible]Linux[illegible]15[illegible]20[illegible]70[illegible]ARPAnet[illegible]ITS[illegible]Usenet[illegible]FSF[illegible]1984[illegible]FSF[illegible]“[illegible]”[illegible]

[illegible]Linux[illegible]HURD[illegible]

[illegible]Linus Torvalds[illegible]UNIX[illegible]……[illegible]

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[illegible]“[illegible]”[illegible]

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5.5 “[illegible]”[illegible]

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1998[illegible]2[illegible]3[illegible]VA Research[illegible]VA Linux System[illegible]“[illegible]”[illegible]“[illegible]”[illegible]Open Source Initiative[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]Richard Stallman[illegible]“[illegible]”[illegible]“Think free speech,not free beer”[illegible]

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Linus Torvalds[illegible]Bruce Perens[illegible]opensource.org[illegible]Open Source[illegible]http://www.opensource.edu[illegible]Debian Free Software Guidelines[illegible]“[illegible]”[illegible]Open Source Definition[illegible]http://www.opensource.org/osd.html[illegible]“Open Source”[illegible]OSD[illegible]“Open Source”[illegible]

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6.[illegible]“Open Source”[illegible]

[illegible]“[illegible]”[illegible]embrace and extend[illegible]“Open Source”[illegible]Bruce Perens[illegible]“[illegible]”[illegible]Open Source Definition[illegible]Debian Free Software Guidelines[illegible]

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[illegible]Reason Foundation[illegible]“User Friendly”[illegible]1998[illegible]12[illegible]“[illegible]”[illegible]http://www.userfriendly.org/cartoons/archives/98dec/19981203.html[illegible]Obi-Wan Kenobi[illegible]

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[illegible]Mozilla[illegible]Jamie Zawinski[illegible]Mozilla[illegible]Mozilla[illegible]Zawinski[illegible]

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[illegible]2000[illegible]SGI[illegible]IRIX[illegible]SGI[illegible]Linux[illegible]2000[illegible]SCO[illegible]Caldera[illegible]UNIX[illegible]Linux[illegible]SGI[illegible]

·Windows 2000[illegible]2[illegible]

[illegible]2000[illegible]IDG[illegible]Windows 2000“[illegible]”[illegible]2000[illegible]10[illegible]11[illegible]

[illegible]Linux[illegible]Windows 2000[illegible]

[illegible]2001[illegible]Linux[illegible]59%[illegible]OEM[illegible]

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[illegible]OEM[illegible]——[illegible]

[illegible]BeOS[illegible]OS/2[illegible]Mac OS/X[illegible]OS[illegible]OS[illegible]30[illegible]Linux[illegible]Y2K[illegible]……

[illegible]Linux[illegible]GUI[illegible]

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[illegible]GNOME[illegible]KDE[illegible]Linux[illegible]GUI[illegible]

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2000[illegible]Macintosh[illegible]Andy Hertzfeld[illegible]Macintosh[illegible]Eazel[illegible]Macintosh[illegible]Linux[illegible]

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[1] [illegible]shot heard'round the world[illegible]Ralph Waldo Emerson[illegible]“Concord Hymn”[illegible]1837[illegible]Lexington[illegible]Concord[illegible]——[illegible]

[2] [illegible](meme)[illegible]Neo-Darwinism[illegible]Richard Dawkins[illegible]1976[illegible]The Selfish Gene)[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

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[3] Thomas Paine（1737–1809）[illegible]——[illegible]

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http://www.tuxedo.org/~esr/faqs/hacker-howto.html[illegible]

[illegible]FAQ[illegible]

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A.3 [illegible]

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A.4 [illegible]

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[illegible]Python[illegible]http://noframes.linuxjournal.com/lj-issues/issue73/3882.html[illegible]Python[illegible]http://www.python.org[illegible]

Java[illegible]Python[illegible]Python[illegible]

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3.□□□□□□WWW□□HTML□

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[illegible]——[illegible]HTML Hell Page:http://www.tuxedo.org/~esr/html-hell.html[illegible]

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A.5 [illegible]

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1.[illegible]

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[illegible]“free software”[illegible]“free”[illegible]“[illegible]”[illegible]
http://www.opensource.org/[illegible]

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[illegible]beta[illegible]bug[illegible]

[illegible]beta[illegible]

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[illegible]FAQ[illegible]

4.[illegible]

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5.[illegible]

[illegible]“[illegible]”[illegible]:-)[illegible]

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A.6 [illegible]

[illegible]nerd[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]geek[illegible]——[illegible]Geek[illegible](http://samsara.circus.com/~omni/geek.html)[illegible]

[illegible]20[illegible]70[illegible]“[illegible]”[illegible]techno-nerd[illegible]

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Peter Seebach□□□□□□□□□□FAQ（http://www.plethora.net/~seebs/faqs/hacker.html□□□□□□□□□□□□□□□□□□□□□□□□□□□□“□□□□□”□http://www.tuxedo.org/~esr/writings/hacker-history/hacker-history.html□□“□□□□□□”(http://www.tuxedo.org/~esr/writings/cathedral-bazaar/index.html)□□Linux□□□□□□□□□□□□□□□□□“□□□□□”□http://www.tuxedo.org/~esr/writings/homesteading/□□□□□□□□□□□□□□□□

A.9 [illegible]FAQ[illegible]

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[illegible]LUG(Linux[illegible])[illegible]LDP Linux[illegible]http://MetaLab.unc.edu/LDP/intro.html[illegible]LUG[illegible]Linux[illegible]

[illegible]

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[illegible]18[illegible]

Visual Basic[illegible]Delphi[illegible]

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Visual Basic[illegible]
Basic[illegible]

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Linux[illegible]BSD[illegible]/[illegible]

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[illegible]UNIX[illegible]Linux[illegible]

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lab.unc.edu/LDP/[illegible]

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GIMP[illegible]Perl[illegible]IRC[illegible]

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[illegible]Linux Reading List HOWTO[illegible]

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[illegible]HTML:The Definitive Guide[illegible]

[illegible]http://www.oreilly.com/catalog/html3/[illegible]

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http://www.python.org[illegible]Perl[illegible]Perl[illegible]Python[illegible]

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C[illegible]Python[illegible]Perl[illegible]C[illegible]

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[illegible]Intel 486DX50[illegible]X[illegible]

[illegible]Linux[illegible]BSD[illegible]BSD[illegible]modem[illegible]Windows[illegible]Linux[illegible]

[illegible]FAQ[illegible]

http://users.bart.nl/~patrickr/hardware-howto/Hard-ware-HOWTO.html

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[illegible]UNIX[illegible]

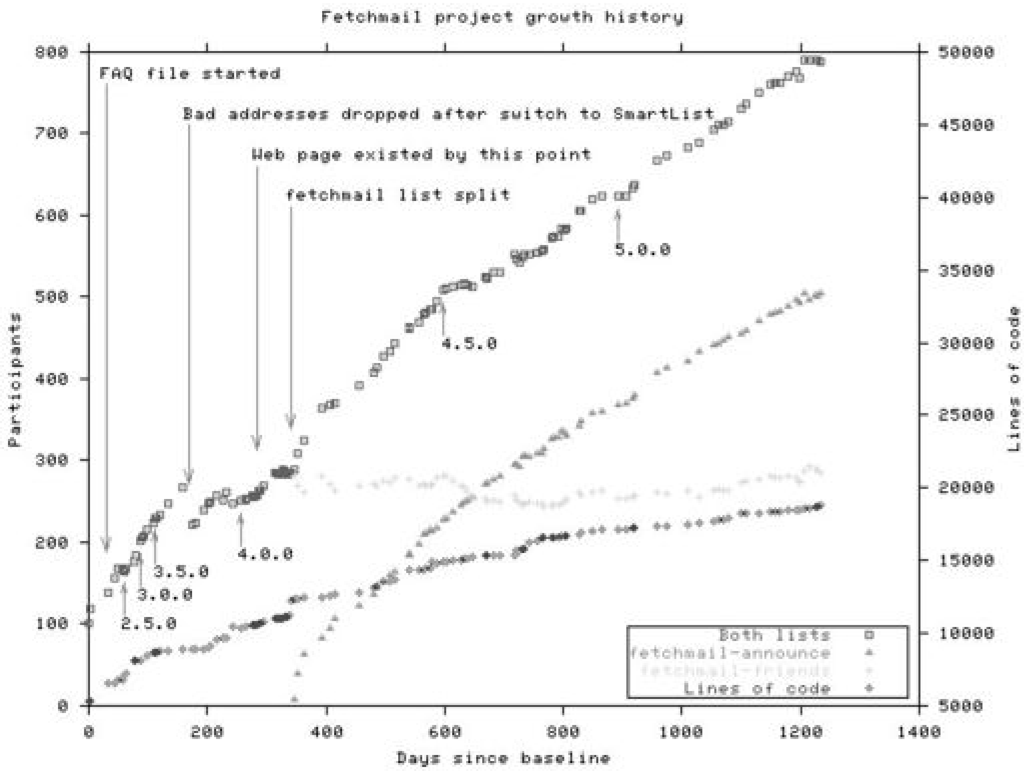
[illegible]UNIX[illegible]……

[1] [illegible]cyberpunk[illegible]cybernetics[illegible]punk[illegible]Bruce Bethke[illegible]1983[illegible]11[illegible]Amazing[illegible]Cyberpunk[illegible]——[illegible]

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·http://kitenet.net/programs/debhelper/stats/□□□

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·http://durak.org:81/sean/pubs/kfc/□□□Linux□□□□□□□□□□□

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1.David E.Lundstrom."Real Programmer."InA Few Good Men From UNIVAC,1987.An anecdotal history.

2.Levy,Steven.Hackers.Garden City,N.Y.:Anchor/Doubleday,1984.

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1.□□Programing Pearls□□□□□□□□□□□□□□□□□□Jon Bentley□Brooks□□□□□□□□□“□□□□□□□□□□□□□□□□□”□□□□□□□□□Brooks□Bentley□□□□□□□□□□□□□□□□□□□□□□“□□□□□□□□□”□□□□□□□□□□□□□□□

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Multics□□□□□□□□□□□□……□□□

4.[illegible]John Hasler[illegible]“Hasler[illegible]”[illegible]“[illegible]”[illegible]sub-quadratically[illegible]

[illegible]Brooks[illegible]bug[illegible]bug[illegible]

[illegible]Linus[illegible]Hasler[illegible]

[illegible]Linus[illegible]Hasler[illegible]“[illegible]”[illegible]many-eyeballs effect[illegible]bug[illegible]

5.Linux[illegible]the deadliness of deadlines[illegible]Marco Iansiti[illegible]Alan MacCormack[illegible]

[illegible]

[illegible]“[illegible]”[illegible]Alan Cox[illegible]

[illegible]bug[illegible]

[illegible]“[illegible]”[illegible]De Marco[illegible]Lister[illegible]“[illegible]”(wake me up when it's done)[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

2000[illegible]“[illegible]”[illegible](anti-deadline)[illegible]GNOME 1.0[illegible]1999[illegible]

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6.Brooks[illegible]N[illegible]“[illegible]”[illegible]“[illegible]+[illegible]”[illegible]“[illegible]”[illegible]Brooks[illegible]“[illegible]”[illegible]Brooks[illegible]Brooks[illegible]UNIX[illegible]——[illegible]API[illegible]——[illegible]Brooks[illegible]

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